State of California AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-10-4

Relating to Certification of New Heavy-Duty Off-Road Equipment Engines

KOMATSU DRESSER CORPORATION

Pursuant to the authority vested in the Air Resources Board by Sections 43000.5, 43013 and 43018 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-9;

IT IS ORDERED AND RESOLVED: That the following Komatsu Dresser Corporation 1997 model-year engine, with rated power between 175 and 750 horsepower, and exhaust emission control systems are certified as described below for use in heavy-duty off-road equipment:

Typical Equipment Usage:

Agriculture Tractor, Mining/Construction Trucks, Snow Groomer, Logging Equipment

Fuel Type: Diesel

Engine Family	Liters (Cubic Inches)	Exhaust Emission Control <u>Systems and Special Features</u>
VKD505R6DTRC (B413)	8.3 (505)	Turbocharger Charge Air Cooler

Engine models and codes are listed on attachments. Production engines shall be in all material respects the same as those for which certification is granted.

The total hydrocarbons (THC), carbon monoxide (CO), nitrogen oxides (NOx), and particulate matters (PM) certification exhaust emission standards, in grams per brake horsepower-hour (g/bhp-hr), and the opacity of smoke emission standards, in percent (%), during acceleration (Accel), lugging (Lug), and peak (Peak) modes, for this engine family are (Title 13, California Code of Regulations, Section 2423):

Exhaust Emissions (g/bhp-hr)			<u>Smoke Opacity (%)</u>			
<u>THC</u>	<u>CO</u> _	NOx	<u>PM</u>	<u>Accel</u>	Lug	<u>Peak</u>
1.0	8.5	6.9	0.4	20	15	50

The THC, CO, NOx and PM exhaust emission certification values, in g/bhp-hr, and the opacity of smoke emission certification values, in percent (%), for this engine family are:

	Exhaust Emission (g/bhp-hr)			<u>p-hr)</u>	Smoke Opacity (%)		
Engine Family	THC	<u>co</u>	<u>NOx</u>	<u>PM</u>	<u>Accel</u>	Lug	<u>Peak</u>
VKD505R6DTRC (B413)	0.3	0.5	5.4	0.2	7	2	16

BE IT FURTHER RESOLVED: That the listed engine models comply with the "Exhaust Emission Standards and Test Procedures--Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2423) for the aforementioned model year.

BE IT FURTHER RESOLVED: That the listed engine models also comply with the "Emission Control Labels--1996 and Later Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model year.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Section 2425 et seq.).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

Executed at El Monte, California this _______ day of January 1997.

Mapped Supposed

An R. B. Summerfield, Chief

Mobile Source Operations Division

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1997 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET HEAVY-DUTY OFF-ROAD DIESEL ENGINES KOMATSU

Displacement: SoS	Manufacturer	KOMATS	U PRESSER CO	KP. Engine Fam	111 <u>y (8413</u>)	VKD505R6DTRC	
Cert Test Procedures: ARB EPAGE PAGE Valves/Ports per Cylinder 2 Strokes per Combustion Cycle 4 Maximum Rated Power: 240 HP (179 KH) @ 2200 Maximum Rated Power: 240 HP (179 KH) @ 2200 Fuel Type(s): Dedicated E Plex-Fuel Dual Fuel Diesel E X100 M55 CNG LNG LPC Other (specify) Diesel Cert Fuel: 40 CFR 89, 330-95 E Other (specify) Diesel Cert Fuel: 40 CFR 89, 330-95 E Other (specify) Primary Service Equipment: Construction/Mining Trucks, Snow Grooners, Logqing Equipment & Ac Tractors Exhaust ECS (e.g., MFI, TC, CAC): TC, CAC Engine Model Rated KP Rul Rate & Rated KP (RPM and Attract Arm of Catalytic Converter Part No. 2052 CS. 3-C 240 4 2200 123(S1.0) FP 3023585 H/A N/A N/A N/A 2055 SAA6D1142-1 230 8 2000 125(84.4) FP 3023275 N/A N/A N/A N/A 2057 SAA6D1142-1 230 8 2000 118(87.3) FP 30230525 SAA6D1142-1 230 8 2000 118(87.3) FP 3023053 FP 3023053 SAA6D1142-1 230 8 2000 118(87.3) FP 3023053	Displacement:	505	/ 8.3	Liters/Cubic Inches	Eng Co	ofig:	T-6
Strokes per Combustion Cycle 4	All Codes in EPA⊠	Eng Fam: CA	□ 49s □ 50s	2			
Maximum Rated Power: 240	Valves/Ports	per Cylinder_	2	Strokes	s per Combusti	on Cycle	4
Fuel Type(s): Dedicated X Flex-Fuel Dual Fuel Diesel X 1100 H85 Diesel Cert Fuel: 40 CFR 89.336-95 Other (specify) Diesel Cert Fuel: 40 CFR 89.336-95 Other (specify) Primary Service Equipment: Construction/Mining Trucks. Snow Groomers, Logging Equipment & Ad Tractors Exhaust ECS (e.g., MFI, TC, CAC): TC, CAC Engine Model (Eng Code) Rated HP (Ref Converter Mining Trucks) Fuel Runp (Part No. Part No. P	Maximum Rated RPM	Power:	240 H	IP (179	K₩⟩ @	2200	
Dual Fuel Diasel Miloo H95 CNG LNG LNG LPC Other (specify)	Igaition: Co	mpression 🛭	Compress	sion with or	_		
Dissel Cert Fuel: 40 CFR 89.330-96 Other (*pocify) Primary Service Equipment: Construction/Mining Trucks, Snow Groomers, Logging Equipment 4 Ad Tractors Exhaust ECS (e.g., MFI, TC, CAC): TO,CAC Engine Model (Eng Code) Rated RP (Eng Code) Rependent of Converter (Ibs/hr) Retr. No. 2062 CC5.3-C 240 12200 123(91.0) FP 3925285 N/A N/A N/A N/A 2055 SA6D114E-1 230 6 2000 125(84.4) FP 3929173 N/A N/A N/A 2077 SAA6D114E-1 230 6 2200 119(87.3) FP 3929837 N/A N/A N/A Cate Issued:	Fuel Type(s):	Dedicated K	Flex-Fue	of Charles and bind		Spe	ark 🗌
Primary Service Equipment: Construction/Mining Trucks, Snow Groomers, Logging Equipment & AG Tractors		сис 🗆	LNG LPG	Other (see)	el 📗 Dies	el 🛛 🗡 100	☐ M85 ☐
Exhaust ECS (e.g., MFI, TC, CAC): Tractors TC, CAC (use abbreviations per SAE J1930 JUN93) Engine Model (Eng Code) (Rated HP (Eng Code)) (Rated HP (Eng Code)) (Rated HP (Eng Code)) (Rated HP (Ibs/hr)) (Diesel Cert F						
Exhaust ECS (e.g., MFI, TC, CAC): TC,CAC (use abbreviations per SAE J1930 JUN93) Engine Model (Eng Code) Rated KP (Rated E2 mm² / stroke (1bs/hr)) Fuel Fuel Fuel Fuel Fuel Fart No. Fart No. Fart No. Valve Converter Part No. 2062 CS.3-C 240 - 1200 123(91.0) FP 3925885 N/A N/A N/A N/A 2055 SA6D114E-1 230 @ 2000 125(84.4) FP 3929173 N/A N/A N/A N/A 2057 SAA6D114E-1 230 @ 2200 118(87.3) FP 3929837 N/A N/A N/A N/A Cate Issued:	Primary Servi	ce Equipment:	_Construction	Venue (specify	i)		
Exhaust ECS (e.g., MFI, TC, CAC): TC,CAC (use abbraviations per SAE J1930 JUN93) Engine Model (Eng Code) Rated KP (RPM) Rated (1bs/hr) Rate	Dubanas ===		Tracto	ors Trucks, Shor	w Groomers, Lo	ogging Equipme	nt & AG
Engine Model (Eng Code) Rated HP (Rated SP Man' / stroke (1bs/hr) Rated NP) (1bs/hr) Fuel Punp & ECM/PCM Part No. Part No. Part No. 2052 CS. 3-C 240 . 1230 123(91.0) FP 3925285 N/A	EXTAUST ECS (e.g., MFI, TC,	CAC):	TC, CAC			
Eng Code) Rated RP (Eng Code) Rated RP (RPM Mm² / stroke (1bs/hx) Fuel Punp & Injector Part No. For You Valve Part No. Valve Part No. Part No. 2062 C5.3-C 240 1200 123(91.0) FP 3925885 N/A N/A N/A N/A 2055 SA6D114E-1 230 € 2000 125(84.4) FP 3929173 N/A N/A N/A 2057 SAA6D114E-1 230 € 2200 118(87.3) FP 3929837 N/A N/A N/A N/A Cate Issued:		1			ions per SAE	T1930 TTV07.	
Converted Conv	Engine Model (Eng Code)		@ Rated E2	Fuel Pump	ECM/PCM		PTOX /
2055 SA6D114E-1 230 @ 2000 125(84.4) FP 3925885 N/A					Part No.		Converter
2055 SA6D124E-1 230 @ 2000 125(@4.4) FP 3925285 N/A				TH 30%AEAS			
2055 SA6D114E-1 230 @ 2000 125(84.4) FP 3929173 N/A	.05.350	240 - 2200			N/A	N/2	
2057 SAA6D114E-1 230 @ 2200 125(@4.4) FP 3929173 N/A				T. 22		378	N/A
2057 SAA6D114E-1 230 @ 2200 119(87.3) IN 3930525 FF 3929837 N/A N/A N/A Cate Issued:	SA6D114E-1	230 € 2000	125(84.4)		N (2	li .	
Date Issued:	2057				N/A	N/A	N/A
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